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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/558,363	11/25/2005	Yasushi Okubo	KON-2053	3845

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EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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07/24/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

info@lmiplaw.com

Office Action Summary	Application No. 10/558,363	Applicant(s) OKUBO ET AL.	
	Examiner SOPHIE HON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-17 and 22-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-17 and 22-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/15/09 has been entered.

Withdrawn Rejections

2. The 35 U.S.C. 103(a) rejections of claims 1-21 over Yamada in view of Machell as the primary references in the Office action dated 3/17/09 are withdrawn due to Applicant's amendment dated 5/15/09.

New Rejections

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 12-17, 22-23, 25-29, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada (US 2002/0123209) in view of Machell (US 5,219,510), as evidenced by Sobrinho (US 2002/0180924).

Regarding claim 12, Yamada teaches a display substrate wherein a moisture proof film comprising a metal oxide or metal nitride is formed on at least one of the surfaces of the transparent film for display substrate (moisture permeability is effectively reduced, [0058]) and a transparent conductive film is formed on the moisture proof film, or on the surface opposite to the surface where moisture proof film is formed (the layer may be provided on both sides of the film substrate, [0058]), the transparent film for display containing: a cellulose ester, and no plasticizer (acetate propionate, [0110]) i.e. in a zero amount which is within the claimed range of less than 1 percent. Yamada teaches that the transparent film is drawn 6 percent (factor of 1.06, [0110]) in a lateral direction (transverse, [0110]), which is within the claimed range of 3 through 100 percent. Yamada fails to teach that the transparent film is also drawn 3 through 100 percent in a conveyance direction.

However, Machell teaches that a transparent film containing a cellulose ester is drawn from 50 to 100 percent (stretch ratio in both directions, column 10, lines 5-17), which is within the claimed range of 3 through 100 percent, in both the lateral direction and the conveyance direction (transverse direction and direction of travel of the web, column 10, lines 5-11), for the purpose of providing the desired superior surface properties (column 10, lines 29-45) which include surface smoothness and optical uniformity as well as dimensional stability (column 2, lines 25-32) suited for a transparent optical substrate (photographic film support, column 2, lines 5-15).

Sobrinho teaches that the surface smoothness of a display substrate is critical for the smooth deposition of a metal nitride ([0026]) or metal oxide ([0027]) and is thus

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increased for the purpose of providing the desired improvement in moisture barrier properties ([0026]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have drawn the transparent film containing cellulose ester of Yamada in both the conveyance direction and the lateral direction, in order to increase the surface smoothness of the film, as taught by Machell, so as to obtain the desired improvement in moisture barrier properties, as taught by Sobrinho.

Regarding claim 13, Yamada teaches that the moisture proof film can be mainly composed of silicon oxide ([0058]).

Regarding claim 14, Yamada teaches that the moisture proof film comprising the transparent conductive film, as described above, is formed by a vacuum evaporation method, a sputtering method or an ion-plating method ([0059]). Yamada thus fails to teach that the moisture proof film comprising the transparent conductive film is formed by the claimed method. However, even though product by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See MPEP 2113.

Regarding claims 15-17, Yamada teaches a liquid crystal display, or a touch panel or an organic electroluminescence display using the display substrate discussed above (organic EL, [0059]).

Regarding claims 22-23, Yamada teaches that the transparent film contains a hydrolyzed polycondensate of the cellulose ester and methyltriethoxysilane ([0110]), which is an alkoxysilane expressed by general formula (1) of Applicant wherein R of Applicant = R' of Applicant = a methyl group, which is a monovalent substituent, and n of Applicant denotes 3. The alkoxysilane moieties in the hydrolyzed polycondensate are expected to be inherently expressed by general formula (2) of Applicant. Yamada teaches that the total amount of the inorganic high molecular compound, or inorganic condensation polymer ([0049] is more preferably in the amount of 10 to 30 percent by mass in the transparent film ([0056]).

Regarding claim 25, Yamada teaches that the number average molecular mass of the cellulose ester is 100,000 ([0110]).

Regarding claim 26, Yamada teaches that the degree of substitution of the cellulose ester by the acetyl group, X, can be 1.8 and the degree of substitution by the propionyl group is 0.8 ([0113]), which means that the degree of substitution by a substituent containing an alkoxysilyl group, Y, can be within the range of up to 0.4, which is within the claimed range of 0 to 1.5, satisfying Formula (A) of Applicant, as well as Formula (B) of Applicant since $X + Y = 1.8 + 0.4 = 2.2$, which is within the claimed range of 1.0 to 2.9.

Regarding claim 27, Yamada teaches that the degree of substitution of the cellulose ester by the acetyl group is 2.5 ([0110]) which is within the claimed range of 2.2 through less than 2.9.

Regarding claims 28-29, Yamada teaches that the hydrolyzed polycondensate is formed from a composition that contains tetraethoxysilane ([0110]) which has four hydrolyzable ethoxy groups that can form crosslinks in the polycondensate (cross-linked, [0050]). Hence the transparent film is expected to contain the hydrolyzed polycondensate as a crosslinked polymer, where the cellulose ester and the crosslinked polymer form a semi-interpenetrating polymer network type polymer alloy. Yamada teaches that the crosslinked polymer, or hydrolyzed polycondensate, is present in an amount of preferably in the amount of 10 to 30 percent by mass in the transparent film ([0056]).

Regarding claim 31, Yamada teaches that the transparent film has a positive wavelength dispersion property ([0038]), and hence, since the ratio $[R_0(450)/R_0(600)]$ is less than 1 (a value obtained by dividing a retardation within the plane R(600) of the film at wavelength 600 nm by a retardation within the plane R(450) of the film at wavelength 450 nm is more than 1, [0038]), the wavelength of 450 nm is very close to the claimed wavelength of 480 nm, and the wavelength of 600 nm is very close to the claimed wavelength of 590 nm, the ratio of $[R_0(480)/R_0(590)]$ is expected to also be in the range of less than 1.0, which overlaps the claimed range of not less than 0.8 through 1.0.

4. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Machell, as evidenced by Sobrinho, as applied to claims 12-17, 22-23, 25-29, 31 above, and further in view of Kakinuma (US 5,840,465).

Yamada, as modified by Machell, teaches a transparent film for display substrate, wherein the transparent film contains a hydrolyzed polycondensate of the

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cellulose ester and an alkoxysilane, as discussed above. Yamada fails to teach that the transparent film contains an organic crosslinking agent having a plurality of isocyanate groups in an amount of 1 through 20 percent by mass to crosslink the cellulose ester.

However, Yamada teaches that the composition is heated to provide crosslinking ([0050]) which means that the crosslinking can be enhanced by an organic crosslinking agent.

Kakinuma teaches that an organic crosslinking agent having a plurality of isocyanate groups is added to a composition to react with the hydroxyl groups of a hydroxyl group-containing polymer to induce crosslinking (column 5, lines 24-27) in an amount of 0.1 to 20 percent by mass (parts by weight based on 100 parts by weight, column 13, lines 15-30) which contains the claimed range of 1 through 20 percent. A cellulose ester is a species of hydroxyl group-containing polymer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have added an organic crosslinking agent having a plurality of isocyanate groups in an amount within the range of 1 through 20 percent by mass to the transparent film composition containing cellulose ester of Yamada, in order to obtain the desired amount of crosslinking of the hydroxyl group-containing polymer, as taught by Kakinuma.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada in view of Machell, as evidenced by Sobrinho, as applied to claims 12-17, 22-23, 25-29, 31 above, and further in view of Ota (US 6,866,949).

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Yamada, as modified by Machell, teaches the transparent film for display substrate, wherein the transparent film contains a hydrolyzed polycondensate of a cellulose ester and an alkoxysilane, as discussed above. Yamada fails to disclose that the film has a glass-transition temperature that is within a range of 180 degrees Celsius or more, or that it has coefficients of linear expansion in both MD and TD directions within a range of from 5 through 50 ppm/degrees Celsius.

However, Ota teaches that a display substrate requires a glass-transition temperature within a range of 150 degrees Celsius or more (abstract), which contains the claimed range of 180 degrees Celsius or more, and requires a coefficient of linear expansion within a range of 80 ppm/degrees Celsius or less (abstract) in both MD and TD directions, which contains the claimed range of from 5 through 50, for the purpose of providing the desired dimensional stability during processing or use (substrate film, column 1, lines 13-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the transparent film of Yamada, as modified by Machell, with a glass-transition temperature that is within the range of 180 degrees Celsius or more, and coefficients of linear expansion in both MD and TD directions that are within the range of from 5 through 50 ppm/degrees Celsius, in order to obtain the desired dimensional stability during process and use, as taught by Ota.

Response to Arguments

6. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/

Sow-Fun Hon

Examiner, Art Unit 1794